

1-2010

## RECM 345X.01: Study Abroad Program in Southeast Queensland

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**University of Montana/AUIP Study Abroad Program in Southeast Queensland**  
RECM/FOR 345X Sustaining Human Society and the Natural Environment (6 semester credits)  
May 23 – June 17, 2010  
www.cfc.umt.edu/studyabroad

*Please note: This syllabus is a general plan only and deviations may be necessary*

The Instructors: Dr. Bill Borrie, Professor, The University of Montana  
Dr. Bob Brown, Professor, Wake Forest University  
Supporting lectures from faculty at James Cook University, Brisbane (Queensland, Australia)  
Plus local field experts (*Dave Logan, Sascha Thyer, Barry Davies, Simon Ling*)

This program focuses on the conservation and management of Australia's natural resources, including their cultural value, through educational travel, field trips, active participation, presentations and seminars, and coursework exercises. Queensland has a wonderful year-round tropical climate and boasts some of the most diverse and remarkable natural resources in the southern hemisphere. Our program will be based at the University of Queensland in Brisbane, and will include two weeks in the field visiting a network of national parks, reserves, offshore islands, and coastal areas of southeast Queensland. These include time spent snorkeling and exploring marine wildlife of the Great Barrier Reef ecosystem, touring Carnarvon Gorge National Park learning about Aboriginal culture and history, and hiking the rainforest of Lamington National Park to experience first-hand some of the diverse wildlife and flora of Australia. Our program will focus on topics related to sustainable development (sustaining human societies and the natural environment) through educational travel, field trips, active participation, lecture presentations and seminars, and coursework exercises.

#### Course description

The goal of this course is using the South East Queensland case to integrate the different perspectives of diverse natural, biological, and social science disciplines to improve understanding of relationships between human societies and the natural environment. The impact of humans on natural resources and their sustainable use and conservation will be emphasized.

#### Course objectives

By the end of the program students will:

1. Understand the natural history, biogeography, ecological diversity, and related social and cultural contexts of Australia through an exploration of Queensland's network of national parks and protected areas, which encompass the Outback, rainforests, coastlines, marine reserves, and offshore islands;
2. Understand the impacts of human actions on the natural systems, and human responses to those changes, using the case of Queensland, Australia;
3. Develop an understanding of ecological education practices, integrated natural resource management, and conservation actions throughout Queensland, Australia;
4. Be able to address relationships between human societies and their natural environments from multiple disciplinary perspectives and to develop a complex, multi-faceted and holistic view of human – environment connections that cross traditional disciplinary boundaries.

#### Credit

Students will be registered for a total of 6 semester credits at the undergraduate level and may choose any one course for 6 credits (see list of courses below). Regardless of which course that the student registers for, all students will receive the same course material.

RECM 345X (6 credits) Sustaining Human Societies and the Natural Environment – Australia  
FOR 345X (6 credits) Sustaining Human Societies and the Natural Environment – Australia

#### Prerequisites

There are no pre-requisites, but eligible students must be accepted by the University of Montana and be in good academic standing at their home institution.

#### Attendance and lateness policy

Active participation in all scheduled, program-related activities is required, including group meetings, discussions, field excursions, as well as lectures and any other scheduled activities.

During the field studies, no student is to leave the group without the consent of the faculty supervisor, and punctual attendance at all field and on-campus meetings is required. Unless an absence is approved by one of the instructors or the program directors, students will lose 10% of their final grade for each day or part-day they fail to participate. Any unexcused absences *or continued late arrival* to program activities may, at the discretion of the Program Director, be grounds for dismissal from the program.

All modules and other assignments must be turned in at the start of the day due. Permission must be obtained *in advance* to turn in any assignment late. A standard policy of subtracting 10% per day late (or part of day late) is fair to everyone (students, instructors, and administration).

### Academic honesty

All academic work must meet standards of academic honesty (as described in the Student Handbook). Each student is responsible for informing themselves about those standards before performing any academic work. Academic dishonesty is not just copying the work of others, but also includes such behaviors as tolerating the academic dishonesty of others or giving false reasons for failure to take a test.

Your signature on any exam or name printed on any assignment indicates your acceptance of the following policy: "I have neither given nor received unauthorized aid on this exam or assignment". Please give due credit to other people's ideas by referencing or quoting the source.

### Special accommodations

Any student with a disability who needs an accommodation or other assistance in this course must contact the instructor and AUIP at least 4 weeks before the program begins. After that time, we cannot guarantee that such needs can be accommodated. Some activities involve moderate exercise, such as hiking and snorkeling and participation is voluntary for all students.

### Conduct regulations

All students must be familiar with the general conduct regulations described in the Student Handbook. Below are other program-specific conduct regulations to which students must adhere. Failure to obey these policies may result in dismissal from the program, at the discretion of the Program Director.

*Student Conduct in Accommodation:* In hostels and backpackers it is generally accepted that you will *be quiet in hallways and all common rooms after 9:30 p.m.* Our program depends on goodwill between us and the accommodation owners and managers to be able to get priority bookings in busy seasons or small towns. If we have any issues with unpleasant or noisy conduct in the accommodations, it creates problems when we attempt to book for the students in the NEXT program. Thus, for the sake of the students that follow you, improper conduct in the accommodations that disturb other guests or the staff or cause damage are not acceptable and can be grounds for dismissal from the program. Note, Australians can find American voices to be very loud even when we don't mean to be!

*Conduct in the Field:* Students must follow the instructions of staff exactly and promptly when in the field. This is a serious safety issue when we are doing outdoor activities in particular. Failure to follow instructions that incur actual or likely physical harm to self or others, or result in time wasted by the staff or other students may, at the discretion of the Program Director, be grounds for dismissal from the program.

*Environmental awareness:* One of our primary goals is to promote environmental stewardship and a personal responsibility for resource use and consumption. As a result, we expect all students to:

1. stay on trails and practice good trail etiquette;
2. avoid interaction with wildlife (including touching, feeding and holding wild animals), and refrain from picking or destroying vegetation; and
3. reduce waste and recycle.

### Coursebook and required readings

The course reading packet will be available (under "Australia: South Queensland, AUIP Summer 2010") pre-departure at Bel-Jean Copy-Print Center, 163 E. Broad St., Athens, GA 30601 (Tel: 706-548-3648) and contains all the required readings and supporting materials for completing coursework plus some general helpful information. To order your course reading packet please follow the instructions at this link <http://www.bel-jean.com/contact-study-abroad.php>. **You must bring this with you as copies will not be available in Australia.**

### Pre-departure (optional) readings

For pre-departure reading, we recommend:

*Guns, Germs, and Steel*, by Jared Diamond  
*The Fatal Impact*, by Alan Morehead  
*The Fatal Shore*, by Robert Hughes  
*Follow the Rabbit Proof Fence*, by Doris Pilkington and Nugi Garimara  
*A Town Like Alice*, by Nevil Shute  
*Dingo Makes us Human*, by Deborah Bird Rose  
*The Original Australians*, by Josephine Flood

## Course assignments

### 1. Pre-departure culture and geography quiz & reflective exercise (10%)

*Complete this assignment before you arrive in country as there will be no time to do this when you get there.*

The pre-departure culture and geography quiz is found in the course reading packet. You will need to use the internet and/or library resources to complete the assignment which is to be **handed in on the first day of the program**.

The second component is a reflective journaling exercise (see below) and should be completed **before** you depart the United States. There are no right or wrong answers and your grade on this exercise will be pass/fail. I'm not setting a word limit for this exercise, but I expect most folks will write 2 or 3 pages (about 1000 words).

### 2. Field modules and site quizzes (50%)

The modules relate what we learn in the classroom with field activities. The course reading packet and the field staff are your primary sources of information to help you complete the module questions. Note that the field experts are resources to help you complete the modules but not to provide you with answers; their role is to guide you in discovering them yourselves. Written answers to the module questions are due at intervals throughout the program (see itinerary); part of the module grades may also be based on field site quizzes as will be explained by the course instructor. Each module question will be graded as follows:

- A Explains the core concept(s) very clearly and with evidence of real thought, technically correct response, gives the most relevant and best examples, very clear and well written, only relevant material included and thoughtfully concise.
- A- A very good answer, worthy of an A grade but may contain some minor content, grammatical, and/or editorial corrections.
- B+ A strong answer that clearly shows thorough understanding of the material but does not contain all the necessary content required.
- B Discernable evidence of grasp of concept, good and correct examples given, well written, thoughtfully concise
- B- A well-written answer that contains most (but not all) of the content required and may suffer from some grammatical and/or editorial mistakes and omissions.
- C Adequate but limited grasp of core concept(s), some examples although not necessarily the best or most relevant, legible. May lack conciseness or clarity in the response.
- D Little or no grasp of core concept(s), or incorrect or no examples given, or hard to read or poorly written.
- F Fails to address the question, or little or no grasp of core concept and incorrect or no examples given, or illegible.

### 3. Final exam (35%)

The final exam will be open book and comprehensive across the program, and may draw material from any reading, field exercises, lectures, or discussions. The exam will be comprised of a mixture of questions including multiple-choice, essay, short answer, etc. Sample essay questions for the exam include the following:

- a) Briefly describe i) the important ecological relationships for **one** (1) of the places / regions that we visited on this course (e.g. Carnarvon Gorge, Lamington National Park, etc.), and ii) the interruptions of those relationships caused by human-introduced species such as wild pigs, rabbits, feral dogs, non-native plants, etc.
- b) It could be suggested that South East Queensland's recent history has been one of 'boom and bust' as the human settlers (Aborigine and British) have moved from exploiting and exhausting one natural resource after another. Do you agree? Give examples.
- c) What will it take for people like the proud citizens of the South East Queensland to become a sustainable society? What sorts of experiences would lead them to engage in action for ecological stewardship and/or have different environmental values or practices? Are Aborigine perspectives an important component?
- d) You have been hired by the tourism board of Queensland to work as a **sustainability** consultant. What would you advise? (i.e. what would you recommend be maintained and strengthened, and what needs improvement?)

### 4. Post-departure reflective essays (5%)

Respond to each question (below) with your own personal thoughts and observations that reflect your experience on this program (there is no need for any references). There are no right or wrong answers and your grade will be pass/fail (you may, for example, wish to write this on the plane after the program or while waiting at the airport). Complete each question in an essay of up to 250 typed words (per question) in Times New Roman 12 point font (single-spaced) and email as one electronic (Word or .pdf) file (titled "reflection essays <first and last name> <study abroad country>") to **bill.borrie@umontana.edu** within 72 hours of completion of the program. Include the date, as well as your first and last name on the header of the file.

In reflecting on your study abroad experience.....

1. What did you learn about the country that you visited? (up to 250 words)
2. What did you learn about yourself as an American? (up to 250 words)
3. How have your perspectives about the world changed? (up to 250 words)
4. What, if any, changes in your own behavior do you anticipate as a result of participating in this program? (If none, please explain why the program will not have any influence on your own behavior.) (up to 250 words)

Grade Assessment

Final grades for all 6 semester credits/hours will be assessed together and as follows:

<b>Grade</b>	<b>Points</b>	<b>GPA</b>	<b>Grade</b>	<b>Points</b>	<b>GPA</b>	<b>Grade</b>	<b>Points</b>	<b>GPA</b>
A	94 – 100 %	4.00	C+	77 – 79%	2.33	D-	60 – 62%	0.67
A-	90 – 93 %	3.67	C	73 – 76%	2.00	F	< 60 %	0.00
B +	87 – 89 %	3.33	C-	70 – 72%	1.67			
B	83 – 86 %	3.00	D+	67 – 69%	1.33			
B-	80 – 82 %	2.67	D	63 – 66%	1.00			

General contact information while in Australia:

American Universities International Programs  
P.O. Box 3771  
Christchurch 8140  
New Zealand

Ph.: +64.3.377.4644 (work), +64.27.525.1339 (cell)  
Fax: +64.3.377.4641

Email: [donna@auiip.com](mailto:donna@auiip.com)

Emergency contact at University of Montana:

Office of International Programs: (406) 243-2299  
After hours: (406) 370-7536 (cell)

## Reflective journaling

### 1. *Pre-departure exercise*

Australians love to talk. But, what are they talking with about one another?

By providing this exercise several months prior to your departure for Australia, we hope that you will be able to take some time to familiarize yourself with life in Australia. By observing local media (newspapers, radio, and TV), we would like you to put yourself in the shoes of Australians. There are no 'right' or 'wrong' answers to this exercise, but you should aim for as much accuracy, authenticity, and significance as you are able.

Over the next couple of months, read the online versions of major Australian newspapers, listen to Australian radio, and watch clips from Australian TV. The aim of this exercise is for you to identify what it is that many Australians are talking about, thinking about, and concerning them about their country and their lives. As you read, watch, and listen, you will find that some concerns and issues keep returning again and again. These will vary from political issues to economic issues to sport and entertainment issues. What is it that occupies the minds and hearts of Australians?

You will find that some of these concerns are somewhat universal and some are very localized. In the case of universal concerns, you may find them familiar and yet expressed a bit differently. For example, concern with global warming is something that many countries are wrestling with. But, Australians seem to be much more concerned about drought than other countries. You might want to consider why a common concern is expressed differently in Australia. Other topics, like sport, on first view appear to be quite different (such as a different code of football – rugby, soccer, or Aussie Rules) but then seem to reinforce similar passions and ethics (such as group identity, sportsmanship, and a simultaneous respect and disdain for referees).

What **values** seem to be most important to Australians? What **behaviors** are disdained, frowned up or held up for scorn? What **attitudes** are common, popular, and celebrated? What do Australians **laugh** about?

Newspapers:	The Australian (more conservative, nationwide):	<a href="http://www.theaustralian.com.au/">http://www.theaustralian.com.au/</a>
	The Brisbane Times (more progressive, big city):	<a href="http://www.couriermail.com.au/">http://www.couriermail.com.au/</a>
	The Courier Mail (lighter weight, big city):	<a href="http://www.couriermail.com.au/">http://www.couriermail.com.au/</a>
Radio:	Triple J (government run, Australia-wide youth network):	<a href="http://www.abc.net.au/triplej/">http://www.abc.net.au/triplej/</a>
	Triple M (commercial radio, rock'n'roll/humor):	<a href="http://www.triplem.com.au/brisbane">http://www.triplem.com.au/brisbane</a>
	Nova FM (commercial radio, dance/hip-hop):	<a href="http://www.novafm.com.au/nova1069/">http://www.novafm.com.au/nova1069/</a>
	Triple Z (college radio, big city):	<a href="http://www.4zzzfm.org.au/">http://www.4zzzfm.org.au/</a>
	• <i>Breakfast radio (6 – 9am Australian east coast time) is often the best time to listen, which corresponds to 1 – 4pm Montana time.</i>	
TV:	Yahoo 7 (commercial TV network):	<a href="http://au.tv.yahoo.com/">http://au.tv.yahoo.com/</a>
	ABC (government network):	<a href="http://www.abc.net.au/tv/">http://www.abc.net.au/tv/</a>
	SBS (government network, global focus):	<a href="http://www.sbs.com.au/">http://www.sbs.com.au/</a>

## Field modules and site quizzes

### Format for Module Responses

Our programs use field modules as an instructional approach to introducing topics of study. The module approach relies heavily on short essay answers to complex ecological, environmental and social issues related to sustainability. This is a writing-intensive approach to study that requires the student to have (1) a clear understanding of the question and responses and (2) the ability to formulate those responses in a concise and non-redundant manner. We believe that reading, writing and communication skills are critically important to gaining the most from higher education and for being successful in the workplace. Those who speak and write well are at a clear advantage when competing for jobs and promotions.

Each module relates to a specific theme and/or geographical location and consists of (a) a background/introductory narrative, (b) related readings and other associated material, and (c) approximately 2-4 questions. The following guidelines are applied to grading and assessing your work:

1. Each question (comprised of all parts) should be answered using a limit of 250 words written clearly, succinctly, and legibly. Your response will be graded on appropriate content, grammar, and presentation. Do not repeat the question as part of your answer.
2. Any references other than from the readings listed with the module (a) are encouraged (to be included as citations in the body of the essay) and (b) must be included in a references section (not included in the 250 word limit). Such references include all forms of personal communication (from lecturers, faculty members, field guides, etc), information available during field trips (for example, visitor centers), and/or incidental/additional material collected during the program (from libraries, tourist shops, etc).
3. There is a penalty for exceeding the word limit and only the first 250 words may be graded.
4. If there are multiple parts to each question (e.g., 1a, 1b, 1c, etc), give equal weight to each part.
5. Unless specified otherwise, all module questions receive equal weight in the final assessment.
6. Answer each question on one side of a single sheet of paper and include the references on the reverse side. You should not include references for readings that are already included as part of the module question (though you can/should cite the author(s) of these readings within the body of the essay) – use the reference section only for additional sources not included as part of the module question. Write your name and question # at the top of each sheet of paper.

### The Module Approach

The module approach is probably unlike most other approaches to teaching and learning that you have experienced on campus. In most campus classes, you are taught and you learn through lectures in a somewhat linear fashion with one class building upon another. The module approach is more like doing a mosaic in which the complete picture only gradually comes into focus as more and more pieces of the mosaic are put into place. When the last piece of the mosaic is in place, the picture is complete, and you can see the complex and multifaceted nature of what you have created. To push this analogy a little further, the pieces of the mosaic are like pieces of information, and the complete mosaic is the knowledge that you have gained of the subject.

You will likely find this approach confusing and even frustrating early on. Where do I find the pieces of information? Where does this piece fit? *Does* this piece fit? How does this piece relate to the overall topic? These are all legitimate questions, and questions that you will have to keep asking yourself and discussing among classmates. Despite some initial confusion (perhaps like the confusion when confronted with a jumble of mosaic pieces), we believe that the module approach has numerous advantages, especially for teaching and learning within the context of a field-oriented study abroad program. Perhaps the single greatest advantage of this approach is that it is an active approach. You are actively engaged in finding the pieces of information from multiple sources. True, one of these sources is the traditional classroom lecture, but there are also mini field-lectures, class discussions on the road, informal conversations with field faculty, meetings with specialists and professionals, and direct experience and observation, as well as the related readings. The module approach obliges you to be an active learner, an active participant in the learning process. In practice, this means listening and looking, taking good notes, asking good questions, and generally taking advantage of all of the resources and opportunities you encounter. It is a way of learning that is far removed from the taking and regurgitating of lecture notes. The module approach will be novel and challenging for most students. However, if you embrace it, you will also find it a highly satisfying way of learning. Indeed, you may even find that it influences the way in which you look at the world around you and learn beyond this particular study abroad experience.

## Tips for writing essays of 250 words

1. It is arguably more difficult to write essays of 250 words than 1000 words. As a result, write short, concise sentences and avoid quotations. Develop a skeletal outline of your essay, write your answer out, and then rewrite to get within the 250 words limit.
2. Ensure that your sentences flow – don't abruptly change topics. Do not simply provide a chain of undeveloped (or unsupported) facts that are simply reiterations of lectures and/or readings. You can use facts/data but they must be substantiated and fit within the context of the story you are writing.
3. Make a statement, support that statement, and provide the "so what". This shows that you can conceptualize and see "the big picture."
4. Avoid writing about things, and using technical terms about which, you don't understand. Your lack of understanding will come through and affect your grade. If you are confused or don't understand something, ask.
5. Most importantly, answer the question.

## **A Sample Module Question and Answer**

In the space below, we have provided a set of answer examples to a sample question much like that posed in the field modules. The context for the sample module question is Australia, but the example applies as equally to all our other field destinations.

### *Sample Question*

The British claimed Australia to be "Terra Nullius", in part because there was no evidence Aboriginal peoples managed their land. In fact, native peoples practiced extensive management over nearly the entire continent using fire-stick farming. The land viewed by the First Fleet was not "untouched" but rather, highly manipulated and evolved through periodic burning. (a) Describe at least three applications of fire in Aboriginal culture and how these applications influenced the environment. (b) Describe at least three applications of fire by European settlers in Queensland. (c) Compare the Aboriginal and European use of fire and subsequent landuse within the context of environmental sustainability.

### *Poor Answer*

The British said that no one claimed the land because they didn't see any houses and people had no gardens or anything that looked like home (in Europe) and they called that Terra Nullius. They claimed the land for the British Empire even though people lived there already. The first white people to look at eastern Australia thought it looked like a park and it was untouched by humans. They have continued policies for years that said natives were not even humans but they didn't understand anything about their culture and ways of life. Aboriginals used fire a lot for many reasons and it did so for a long time. The way Aboriginals used fire is good for the environment and helps keep it strong and sustaining. They needed fire to live the way they did, and this were called fire-stick farming but it was not farming like Europeans were used to and so they ignored it or did not even recognize it. It helped them catch food and kept them warm at night and they did it for thousands of years. Europeans used fire to destroy the forests and killed off all the animals used by natives. This was very bad for the ecology and rivers are messed up and diversity destroyed. Everything white people have done has been destructive, except farms are getting better about sustainability. As it turns out, Europeans could learn a lot about ecology from the natives. They also used fire to heat their houses. [250 words]

*Critique: (Based on a score of 1-10 points)*

The answer is incomplete, does not address the question well, has examples of incorrect English and misspellings, and generally does not show much of a comprehension of what sustainability means. There is no clear separation of the three parts of the question and no use of references. It begins by repeating the question or opening statement. That is an unnecessary waste of words (you only have 250). Some of the comments were unrelated to the question (natives are not humans).

### Example Scoring:

- a) We are looking for 3 applications of fire in Aboriginal culture with related note on environmental effects of that fire use. Noting the application alone, without reference to environmental effects would be downgraded. For this answer, points would be awarded for reference to catching food and staying warm.
  - b) We are looking for you to identify at least 3 applications by Europeans. For this answer, points would be awarded for reference to land clearing (though it was called forest killing) and heating of houses.
  - c) Points could be earned for contrasting these applications and their sustainability in the environment. In this answer, there are but a few general references to longevity or effect of treatment on the environment.
- Finally, this paper had too many errors to qualify since there were no references used, misspellings, and poor grammar.

Total Score: F grade (4/10)



Good Answer

- a) At first the British didn't recognize that the Aboriginals used fire a lot to shape their environment. In fact they had been using "fire-stick farming", a term coined by a European in the 1800's, for thousands of years. For instance, they used fire to clear the land and make it easier to move around on their walkabouts (Flannery, 1994). The fires often killed snakes, spiders, and other animals which were undesirable and drove game animals out where they could be caught for food. Natives also used fire to cook and for protection at night. Finally, they used fire regularly to prevent big uncontrolled fires from occurring more infrequently. The effect of this fire use was to change the environment, sometimes dramatically, by changing species mixes and vegetation patterns.
- b) Europeans used fire differently (Hughes, 1987). In Queensland they used fire to clear the native rain forest for agriculture. Once they started growing sugar cane, they used fire a lot to burn the cane annually before harvest to protect harvesters and to control disease. Of course, they burned lots of wood for powering sugar mills and heating houses.
- c) Aboriginals have used fires for thousands of years and they have sustained their culture and way of life very well during that time. Fire has certainly resulted in altered landscapes and species mixes or diversity, but these seem to be alright. In a land where soils are generally very poor, fire seems to provide a natural recycling of nutrients which is good. European use of fire along with intensive land clearing efforts and agriculture result in land use practices that are only sustainable with a lot of extra input in fertilizers and pest control. [283 words]

Critique:

This answer shows a greater understanding of the issues, addresses all parts of the question, and does so with a reasonably clear albeit not very concise text (283 words). It still starts off with redundant materials or discourse, rather than getting right to the answer.

- a) Author provides 4-5 uses of fire, although not always presented so that you know for sure if they understood the actual application. The last sentence discussed environmental effects of all applications, although it was brief.
- b) First sentence is unnecessary. Author did capture applications pretty succinctly, though point 2 could have been more complete.
- c) Final paragraph takes a good stab at discussing "sustainability" concepts but lacks depth and understanding. Not a bad effort though.

Finally, points awarded for use of the English language, some references, and proper spelling, formatting; however, a point is deducted for exceeding the word limit by more than 10%.

Overall: B- grade (8/10)

Excellent Answer

- a) Aboriginal populations have intentionally used fire for most of their long tenure in Australia (40 – 60K years), with significant impact on the species mixes and biodiversity of the native flora and fauna (Borrie, personal communication). Specific applications include burning landscapes to reduce undesirable brush and poisonous animals while simultaneously improving habitat for desirable game like kangaroo, driving game for easy collection, defending against warring clans, and cooking and warmth. Frequent, low intensity fires associated with Aboriginal cultures probably reduced the likelihood of catastrophic fires, stabilized species diversity, and created a flora and fauna that could more easily sustain these small, nomadic, hunter/gatherer groups (Roberts, personal communication).
- b) European settlers in Queensland used fire extensively to clear land for agriculture or development of cities, transportation corridors, and industry (Hughes, 1987). Fire was used extensively for energy to run mills and heat homes. In cane fields, fire was essential to make harvest easier, reduce disease on plants, and to kill potentially dangerous pests (snakes and spiders) and rats.
- c) Europeans did not use fire to modify the plant and animal communities in Queensland but to replace them with non-native crops under intensive cultivation (Craig-Smith, lecture; Flannery, 1994). By nature, agricultural crops are not typically sustainable. They require high inputs of energy in the form of fertilizers, farm equipment, pest controls, etc. Aboriginal fire use, though landscape altering, appears to have resulted in sustainable plant and animal communities that could support the modest population sizes that existed. However, even this non-intensive use of fire may have contributed to the pre-historic loss of many larger mammals on the Australia continent (Department of Conservation, 2006). [268 words]

Critique:

This answer is relatively complete, addresses all parts of the question, uses proper English and spelling, is even-handed, and does it all ~250 words. Furthermore, it references the module readings, additional publications/references, and lecturers. It is clear the author thought through the question carefully, had a clear concept of what was to be said before writing started, and made some very relevant points in addition to giving basic answers. For instance, fire-stick farming probably worked very well for sustaining "relatively small" populations, but would be insufficient to support larger populations. In fact, population was intentionally controlled by natives so that resources were not in short supply. Also, even Aboriginal populations probably drove some species to extinction, along with unfavorable climatic conditions.

Scoring: A grade (9.5/10). It is not the only answer that could get an almost perfect score.

## **Preface to Modules**

### Why do we have to learn to identify plants, trees, and animals in this course?

Our course focus on the concept of sustainability: sustainability of human societies and cultures, and sustainability of the environments in which they live. The two (societies and environments) are inseparable. Despite what some may think, humans cannot exist without a supporting environment. The environment consists of non-living things like air, water, and soil. All pretty vital, right? It also consists of living things, notably plants and animals, but there are other creatures that add to the mix like viruses, bacteria, fungi and so forth that play pretty big roles in our lives and do not fall in either the plant or animal “domains”. Virtually all higher life on earth is dependent, at some level, on the sun, its energy and the capture of that energy by plants in the photosynthetic process (which turns photon energy into chemical energy). Plants are eaten by animals which eat each other, and feed us. If that was not enough, plants also produce oxygen (which we need to survive) and take carbon dioxide out of the air (a greenhouse gas). So it would seem prudent to learn a little about plants, the animals that use them, and how they collectively contribute to sustaining life on earth as we know it.

### Role of Diversity in Sustainability

Most natural ecosystems without major disturbances are self-sustaining, in equilibrium, though constantly changing. They can be thrown out of equilibrium by many things: climate change, weather events (hurricanes), volcanic activity, and increasingly, by humans. Equilibrium will frequently be reached again, with time, though human caused changes have the potential to be more long-lasting (or at least as long as we are around, which has not been long). We now recognize that sustaining environments is in large part a function of sustaining plant and animal diversity within those environments. This gets at the concept of interconnectivity. Virtually every organism in an ecosystem has a role or “function” in maintaining that ecosystem. The more diverse the ecosystem, the greater buffering capacity there is to maintain it. That is, there may be multiple organisms that serve the same function, so the loss of one through extinction, may not be noticed. Diversity can be measured at many levels: landscape, ecosystem, species, and within species (genetic!). Land and sea scapes are large, and contain many ecosystems. Take for example the landscape along much of the parts of the Pacific that we visit (Queensland, Australia; Fijian islands; and the South Island of New Zealand). Within a few miles of the Pacific Ocean coastline in these regions you have at least three different systems: Tropical rainforest (among the most species diverse ecosystems in the world), mangrove forests along the coast, and the reef (great coral and fish diversity). These very distinct ecosystems, each of which has its own intertwined functions among organisms, are actually also dependent on the other ecosystems for sustainability.

So, if you accept the premise that diversity is key to sustaining environments and you are along on this course to learn about sustainability, then you must see the value of learning a little about what makes up diversity, both at the ecosystem level and at the level of species, of the ecosystems. In the context of the Pacific (which means calm, peaceful – something that this Ocean most definitely is not!), mangroves simply can't establish in crashing surf and rainforest needs to keep very tight control over its internal climatic conditions which would be impossible in the face of constant oceanic weather conditions. The reef forms a physical barrier against the Pacific swell, which makes this coast very bad for surfing but perfect for mangroves.

As for the weather, although the reef is under water, it still has an enormous effect on the atmosphere above it. Between the reef and the coast there is a large body of water that is trapped by the reef over a shallow sandy seabed. This shallow sandy sea sits there in the tropical sun, warms up and evaporates, creating a huge wall of hot, wet air that sits just off the coast and acts as a barrier or a buffer against the weather coming in from the Pacific. This ‘weather-wall’ protects the coast but as it does so it is blown into the coast by the very weather it is protecting us from. As this warm wet air gets forced over the mountains it experiences a pressure change and a temperature change which condenses the water and squeezes it out of the air and onto the rainforest; and if you do not get rain, you do not get rainforest. Nor do you get rainforest nutrients being flushed out of the forests, through the mangroves and out to the reef and so on...

In reality, what we have here is not three different systems at all. Rather, what we have is three parts of one system. They are no more separate from each other than your leg is from your liver. In fact, this is just one example of what we now know to be a fundamental feature of the natural world. It applies to every living system regardless of size, from the microscopic to the global. It seems that there is not a living system on this planet that exists independently of all others.

## Module I. Brisbane: Cultural Adaptation to the Australian Landscape

The landscape is not only physical but cultural as well, meaning it both constructs and reflects the beliefs, values, and social ideologies of people. As anthropologist Alexander Wilson put it, “Humans and nature construct one another.” The Australian flora, fauna, and people are unique in large part because of the unusual environmental conditions in which they evolved. The harsh physical conditions of the driest inhabited continent in the world required skillful adaptations and cooperation not seen elsewhere. At the same time, a very long history of human occupation has altered the Australian landscape in ways that were only fully appreciated quite recently.

### Readings

1. Cunningham, C. and F. Stanley. Indigenous by definition, experience, or world view. *British Medical Journal* 327: 403-404.
2. Denevan, W.M. (1492) The pristine myth: the landscape of the Americas in 1492. *Annals of the Association of American Geographers*. 82: 369-385.
3. Diamond, J. (1999) Chapter 4 and 15 in: *Guns, Germs and Steel: A Short History of Everybody for the Last 13,000 Years*. Vintage: London. p. 85-92, 295-321.
4. Flannery, T.F. (1994) Sons of Prometheus. Chapter 21 in: *The Future Eaters*. Reed New Holland: Sydney. p. 217-236.
5. Flood, J. (2007). Depopulation: A century of struggle (1820s-1920s). Chapter 4 in: *The Original Australians: Story of the Aboriginal People*. Allen and Unwin: Crows Nest, New South Wales.
6. Wilson, J. (1998) Contact in the balance. Chapter 2 in: *The Earth Shall Weep: A History of Native America*. Macmillan Publishers Ltd: London. p. 16-40.

### Questions

1. (a) Until recently, why was the common perception of Aboriginal culture as “a static culture, frozen by its immemorial primitivism, unchanged in an unchanging landscape”? (b) What alternative explanations are now accepted for the features of Aboriginal culture that appear ‘primitive’?
2. The myth persists that in 1492 the Americas were a sparsely populated wilderness. Likewise, Australia was deemed to be “an unchanging landscape.” Document the specific ways in which (a) the landscape of the Americas was altered by Native Americans, and (b) the landscape of Australia was altered by Aboriginal people.
3. Debate: The impact of European colonization on the indigenous peoples of Australia was not as pronounced as the impact of European colonization on the indigenous peoples of the Americas.
4. You will complete a closed-book quiz based on the lectures and readings from module one, administered at a time and date announced by your group leader.

## Module II. Great Barrier Reef: Managing Marine Resources

The Great Barrier Reef World Heritage Area includes the world's largest system of coral reefs together with lagoon, sea grass, mangrove, and estuarine communities. Extending 2,300 kilometers along Australia's northeast coastline, the Great Barrier Reef is the largest natural feature on Earth created entirely by living organisms. The Great Barrier Reef we see today is mainly approximately 8,000 years old, although some parts of the reef have been dated back to 18 million years ago. This remarkable resource requires very special management solutions. The Great Barrier Reef Marine Park was established in 1975 and covers five times the area protected in Queensland National Parks and over half the area within all protected areas in mainland Australia. Even at this large size, the Park still does not encompass all of the Great Barrier Reef, which extends past Australian waters north to Papua New Guinea. The Park represents one of the most complex and biologically diverse systems on Earth and contains critical habitats for a number of rare, threatened, and endangered species.

The Great Barrier Reef is also a World Heritage Area (GBRWHA), and in fact, it is the largest maritime World Heritage Area in the world and one of just a few that meets all four natural World Heritage criteria: geological phenomena, ecological and biological processes, aesthetics, and natural beauty and biological diversity. The majority of the World Heritage Area, almost 98 percent, lies within the Marine Park, but a number of industries operate within the GBRWHA too. Commercial and recreational fisheries, tourism, shipping, and ports are all economically important industries that use the GBRWHA's resources. Around the world, coral reefs have been declining in recent years. About 10 percent may already have been degraded beyond recovery and another 30 percent are likely to decline seriously within the next 20 years. It has been predicted that more than two-thirds of the world's coral reefs may suffer ecological collapse within two human generations unless more effective management solutions are implemented. Threats include over-fishing, land-based pollution, and coral bleaching exacerbated by increased sea temperatures from global warming.

### Readings

1. Beeton, R.J.S., et al. (2006) Coasts and oceans. Chapter 6: *Australia State of the Environment 2006*. Department of the Environment and Heritage: Canberra. p. 49-58.
2. Connolly N, Kelley R, Pearson R, and Prior T. (2005). Catchment to Reef - an interpretive poster and booklet. Catchment to Reef Program, a joint initiative of Rainforest CRC and CRC Reef Research Center.
3. Mumby, P.J. et al (2008). Coral reef management and conservation in light of rapidly evolving ecological paradigms. *Trends in Ecology and Evolution* 23: 555-563.
4. Palumbi, S.R. et al. (2009) Managing for ocean biodiversity to sustain marine ecosystem services. *Frontiers of Ecology and the Environment* 7: 204-211.

### Questions

1. Why is it important that management strategies that ensure the Great Barrier Reef's sustainability manage (a) the connectivity between various coral reef systems within the Great Barrier Reef, and (b) the connectivity between the Great Barrier Reef and neighboring ecological systems, such as mangroves and estuaries?
2. The health of coral reefs around the world is reported to be declining. Discuss this notion in the context of the threats imposed, whether all threats are of equal importance, and if all reefs will be equally affected.
3. Develop a 500-word group research report for the reef field exercise. The report should contain (a) one research question, (b) three null hypotheses, (c) field methods, (d) results, including appendix of figure or table, and (e) conclusions and implications for the field exercise you conducted. Additional information will be provided at the lecture.
4. You will complete a closed-book identification quiz of marine species, including flora and/or fauna, to be administered at a time and date announced by your group leader.

### Module III. Binna Burra: Rainforests and the ‘Balance of Nature’

The “balance of nature” philosophy, as Tim Low calls it, suggests that animal and plant species in natural habitats live together harmoniously and that nature is something separate and distant from human societies. However, humans are actually an integral part of the natural environment and have changed it to such a degree that almost all plants and animals have responded in some way. This reminds us that our effects on individual species can have far-reaching impacts on entire ecosystems. In this module, we will explore the ‘balance of nature’ idea in a rainforest habitat, which is one of the most culturally revered habitats on our planet. It is also an environment that has been dramatically reduced and where we have much to lose in terms of native biodiversity.

Lamington National Park is a World Heritage-listed wilderness area that contains Australia’s largest preserve of pristine subtropical rainforest. It is situated on the New South Wales/Queensland border approximately 100 kilometers south of Brisbane, and it is part of a mountainous area known as the McPherson Ranges. Around 20 million years ago, a large volcano occupied this area and its demise left a legacy of basalt and rhyolite, two highly weather resistant rocks, throughout the region. The fertile volcanic soils of Lamington National Park now yield a lush environment, home to a large variety of flora and fauna. For thousands of years, Aboriginal people lived in and visited these mountains. Early European settlers also valued the area and fought to make it one of the first national parks in Queensland in 1915. Lamington received World Heritage status in 1994 in recognition of its high biodiversity and because it contains a living museum of the evolutionary steps taken in the development of Australia’s modern day flora. It now includes 20,200 hectares of varying forest types, including one of the most extensive temperate Antarctic beech rainforests in Australia, subtropical rainforests, and dry eucalypt forest. Warm subtropical rainforest grows at altitudes up to 800 meters with a high diversity of tree species and features, such as buttressed roots, woody vines, strangler figs, and epiphytes. Drier slopes carry a simpler rainforest often dominated by hoop pines. Above 800 meters, cool subtropical temperate rainforest, a relic of a cooler, wetter period of Australia’s past, is the most common vegetation type. Here Antarctic beech trees form the canopy with ferns, mosses, and tree ferns growing beneath them.

#### Readings

1. Allworth, D. (1985) Subtropical rainforests. Chapter 4 in: *Rainforests of Australia* (Meier, L. and Figgis, P. Eds.) Kevin Weldon: Queensland.
2. Beeton, R.J.S., et al. (2006) Biodiversity. Chapter 5 in: *Australia State of the Environment 2006*. Department of the Environment and Heritage: Canberra. p. 35-48.
3. Fischer, J., and D.B. Lindenmayer (2007) Landscape Modification and Habitat Fragmentation: A Synthesis. *Global Ecology and Biogeography* 16: 265-280.
4. Williams, J., et al. (2001) The meaning, significance and implications of biodiversity. In: *Australia State of the Environment 2001*. Department of the Environment and Heritage: Canberra. p. 9-18.

#### Questions

1. To many people, the term rainforest conjures up thoughts of monkeys, parrots, and palm trees. The subtropical rainforest at Binna Burra superficially resembles a rich tropical rainforest but differs in significant respects. (a) How do the flora and fauna of the subtropical rainforest differ from that of a tropical rainforest, and what do they reveal about the origin of the subtropical rainforest? (b) There is no evidence that Aboriginal peoples developed agriculture in this region. Why?
2. (a) Discuss the human-based threats to the biodiversity of Australian rainforests. (b) Discuss the ramifications of decreased biodiversity to the sustainability of Australian rainforests.
3. Write a concise, 500 word maximum, group research report for the rainforest field exercise. The report should identify (a) one research question, (b) three null hypotheses, (c) field methods, (d) results, including a summary figure or table as an appendix not part of the word count, and (e) discussion, conclusions, and implications. Additional information will be provided on site.
4. Complete a closed-book quiz on rainforest biota, including geology, flora and/or fauna, administered at a time and date announced by your group leader.

## Module IV. Carnarvon Gorge: Indigenous Relationships with the Environment

Australia has had a unique, distinct, and evolving ecology for a very long time, and Australia's human colonization has resulted in the longest continuous single cultural occupation in world history approximately 50,000 to 80,000 years. Thus, Australia is a very unique case of human-fauna-floral co-evolution, as well as a special case of a set of cultural beliefs and behaviors that emerge from millennia of intimate human-environment interaction at the local level.

Scholars have argued that Aborigines live with the environment, not against it. This sentiment is tribute to the various ways in which the indigenous peoples of Australia relate to their surrounding environment. Technological applications, environmental knowledge, and material uses of resources are the focus at Carnarvon with the contention that Aboriginal practices, including fire, gardening, and medicinal applications, were largely sustainable. As you spend time in the unique environment of Carnarvon Gorge, consider the rich and long-term history of human presence in the area and contrast that with contemporary human uses of the region, including tourism and agriculture.

### Readings

1. Beddoe, R., et al. (2009) Overcoming systemic roadblocks to sustainability: the evolutionary redesign of worldviews, institutions, and technologies. *Proceedings of the National Academy of Sciences* 106: 2483-2489.
2. Flannery, T.F. (1994) Adapting culture to biological reality. Chapter 33 in: *The Future Eaters*. Reed New Holland: Sydney. p. 389-406.
3. Flood, J. (2000) Introduction to Australian Rock Art. Chapter 3 in: *The Riches of Ancient Australia: An Indispensable Guide for Exploring Prehistoric Australia*. University of Queensland Press: Queensland. p. 28-35.
4. Ross, A. and K. Pickering. (2002) The Politics of reintegrating Australian Aboriginal and American Indian indigenous knowledge into resource management: the dynamics of resource appropriation and cultural revival. *Human Ecology* 30: 187-214.
5. Carnarvon Gorge Workbook on Boolimba Bluff.

### Questions

1. Write a letter to your Congress member addressing the benefits of integrating indigenous knowledge in to local, such as the area in which you live and/or have greatest attachment, natural resource conservation policy. This letter may focus on one or more areas you have addressed throughout this program, such as fire regimes, no take areas, land/sea ownership rights, world view, etc.
2. Write a letter to your local town or city council which (a) identifies and discusses two cultural mal-adaptations in your home community and (b) describes how these mal-adaptations could be overcome through changes in rethinking, redesign, or other cultural and/or intellectual considerations.
3. [For the next question, refer to the Carnarvon Gorge Workbook on Boolimba Bluff.] (a) Suppose that the Moolayember Formation was not watertight and did not interact with the Precipice Sandstone to form springs nor push the water table above ground. Describe what differences this would have made, or would make, to pre-colonial and contemporary Australians utilizing the region of the Gorge. (b) If the Precipice Sandstone eroded in the same manner as the Evergreen and Hutton formations, leaving behind a deep valley rather than a gorge, what human use would Carnarvon Gorge have served pre-colonially? (c) What human use would the Gorge serve today? Do you think it would still be a National Park under those circumstances?
4. Complete a closed-book identification quiz of 10 species, including flora and/or fauna, administered at a time and date announced by your group leader.

## Itinerary for Wake Forest and UM

### South Queensland

From 25/05/2010 to 17/06/2010

<b>Tuesday 25 May</b>	<b>Day 1: Brisbane (L)</b>
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#### Group Meals

*Please note that all group meals are designated after the heading for each day (B = breakfast, L = lunch and D = dinner). Where group meals are not specified, you are responsible for providing your own meals. If you are trying to save money, it is cheapest to shop at supermarkets and cook your own meals. Kitchens are available at locations where group meals are not provided.*

6:10 am	Group flight QA16 arrives <i>From the US</i>
9:00 am	Tour of Brisbane's local sites <i>Stopping at local mall for breakfast and money exchange</i>
10:30 am	Orientation <i>Introduction to modules and sustainability To be held at Lone pine</i>
11:30 am	Research Project: Survey A
12:00 pm	Welcome BBQ Lunch <i>At Lone Pine</i>
1:00 pm - 3:00 pm	Lone Pine Koala Sanctuary
3:00 pm	Check in to Hotel <i>Time to rest and shower</i>

#### Accommodation

Hotel George Williams, 317 - 325 George Street, BRISBANE QLD 4000 Phone:(07) 3308 0700

<b>Wednesday 26 May</b>	<b>Day 2: Brisbane</b>
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8:30 am - 10:30 am	Lilla Watson <i>Indigenous Welcome and Introduction</i>
1:30 pm - 3:00 pm	Michael Williams <i>Introduction to Aboriginal Australia</i>
3:30 pm - 5:00 pm	Queensland Museum <i>Dadiiri Mawiwar, Discover Queensland and Icons of Queensland exhibits</i>
4:30 pm	Culture and Geography Review Quiz due and discussion <i>TBC</i>
6:00 pm	Faculty led reflective exercise <i>approx 2 hours</i>

#### Accommodation

Hotel George Williams

<b>Thursday 27 May</b>	<b>Day 3: Brisbane</b>
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8:30 am	Free Day
<u>Accommodation</u>	Hotel George Williams

<b>Friday 28 May</b>	<b>Day 4: Brisbane</b>
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9:00 am - 10:00 am	Bradd Witt <i>Introduction to Australia's Terrestrial Ecosystems</i>
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10:15 am - 10:45 am	Dr. Prue Ahrens <i>Art and Australian Landscapes</i>
1:00 pm - 3:00 pm	Martin Crotty <i>Introduction to Australian History and Society</i>
3:30 pm - 4:30 pm	Queensland Art Gallery
<u>Accommodation</u>	Hotel George Williams

<b>Saturday 29 May</b>	<b>Day 5: Brisbane</b>
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8:30 am - 10:00 am	Dr. Tim Low <i>Invasive Species and their Impacts in Australia</i>
10:15 am - 11:45 am	Dr. Greg Baxter <i>Australia's Unique Wildlife</i>
2:30 pm - 5:00 pm	Geckoes Wildlife Show <i>Introduction to Australia's unique flora and fauna</i>
<u>Accommodation</u>	Hotel George Williams

<b>Sunday 30 May</b>	<b>Day 6: Brisbane</b>
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8:30 am - 8:30 am	Dr Lisa Ruhanen <i>Urban Sustainability Issues</i>
10:45 am	Sustainability Tourism ( Lecture TBC)
2:45 pm	Module Discussion <i>On the Brisbane module</i>
3:45 pm	Brisbane Quiz
<u>Accommodation</u>	Hotel George Williams

<b>Monday 31 May</b>	<b>Day 7: Brisbane to Hervey Bay</b>
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9:00 am	Depart Brisbane for Hervey Bay <i>Brisbane module due</i>
1:00 pm	Free Time <i>To work on modules and prepare for LEI</i>
<u>Accommodation</u>	Fraser Lodge Holiday Park, 20 Fraser St, Torquay, Hervey Bay QLD 4655, Australia Phone:07 4124 9999

<b>Tuesday 1 June</b>	<b>Day 8: Hervey Bay - LEI (D)</b>
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9:30 am	Check out and fly to LEI <i>Luggage limit of 10kg. Remember to pack lunches for 4 days.</i>
2:00 pm	Orientation to the Island <i>Introduction to snorkelling, project design and group module discussion</i>
4:30 pm	Ecotourism and Managing an Island Resort <i>LEI Manager</i>
6:00 pm	Group dinner
7:00 pm	Overview of LEI and the Great Barrier Reef <i>Reef guide</i>



Accommodation

Lady Elliot Island, PO Box 348, Runaway Bay, Australia Phone:1-800-072-200 or +61 7 4156 4444

**Wednesday 2 June** **Day 9: LEI (B, D)**

7:00 am	Group breakfast
8:00 am	Lecture on Biology of Corals <i>Dave Logan TBC</i>
9:30 am	Boat Snorkel <i>Reef diversity and interactions</i>
1:30 pm	Reef Walk <i>And optional diving for certified divers</i>
4:30 pm	Lecture on Reef Diversity and Interactions <i>Discussion of day's sightings</i>
6:00 pm	Group dinner
7:00 pm	Movie <i>"The Shark Catcher" and/or "Reef Creatures"</i> <i>Optional night dive for divers.</i>

Accommodation

Lady Elliot Island

**Thursday 3 June** **Day 10: LEI (B, D)**

7:00 am	Group breakfast
8:00 am	Lecture on Threats to Coral Reefs <i>Dave Logan TBC</i>
9:30 am	Project Design and Discussion
11:00 am	Data Collection and Snorkelling
2:00 pm	Data Collection and Snorkelling
6:00 pm	Group dinner
7:00 pm	Lecture on RAP and Management of the Reef <i>Sascha Thyer</i>

Accommodation

Lady Elliot Island

**Friday 4 June** **Day 11: LEI - Hervey Bay (B)**

7:00 am	Group breakfast
8:00 am	Group Discussion and Synthesis <i>Presentation of project results</i> <i>Discussion on LEI module and feedback on Brisbane module</i>
11:00 am	Clean up and work/free time until departure <i>Work on module questions and prepare for Binna Burra</i>
1:00 pm	Check in for flight back to Hervey Bay

Accommodation

Fraser Lodge Holiday Park, 20 Fraser St, Torquay, Hervey Bay QLD 4655, Australia Phone:07 4124 9999

**Saturday 5 June** **Day 12: Hervey Bay - Carnarvon (D, L)**

8:00 am	Depart for Carnarvon Gorge
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*Binna Burra module due*

7:00 pm Group dinner

Accommodation

Takarakka Bush Resort, Carnarvon Gorge, Via Rolleston, Queensland 4702, Australia Phone:07 4984 4535

**Sunday 6 June**

**Day 13: Carnarvon (B, L, D)**

7:30 am Group breakfast

9:00 am Introduction to Carnarvon National Park  
*Indigenous technology in the outback workshop (Simon Ling)*

1:30 pm Guided walk to Wagaroo Gorge

6:30 pm Group dinner

7:00 pm Night walk & nocturnal wildlife spotting

Accommodation

Takarakka Bush Resort

**Monday 7 June**

**Day 14: Carnarvon (B,D)**

6:30 am Group breakfast

7:30 am Boolimba Bluff exercise:  
*Effects of geology on human cultures (self guided)*

6:00 pm Group dinner

7:00 pm Southern Skies Star Gazing

Accommodation

Takarakka Bush Resort

**Tuesday 8 June**

**Day 15: Carnarvon (B, D)**

6:30 am Group Breakfast

7:30 am Guided walk in Carnarvon Gorge; discussion of Aboriginal rock art

5:00 pm Faculty led reflective exercise

7:00 pm Group dinner

8:30 pm Module Discussion/Campfire  
*Feedback on the LEI module and discussion on the Carnarvon module*

Accommodation

Takarakka Bush Resort

**Wednesday 9 June**

**Day 16: Carnarvon - Brisbane (B)**

7:00 am Group breakfast

8:00 am Group Discussion  
*Discussion on Binna Burra module and feedback on LEI module*

10:00 am Check out of accommodation  
*Return to Brisbane*

Accommodation

Hotel George Williams, 317 - 325 George Street, BRISBANE QLD 4000 Phone:(07) 3308 0700

**Thursday 10 June**

**Day 17: Brisbane**

9:00 am Free Day  
Accommodation Hotel George Williams

**Friday 11 June Day 18: Brisbane to Binna Burra (B, D)**

7:30 am Group breakfast  
8:00 am Depart for Binna Burra, Lamington National Park  
*Carnarvon module due*  
2:30 pm Group lunch  
3:30 pm Barry Davies  
*Introduction to Lamington National Park*  
4:30 pm Animal Track, Scat and Skull and Plant Identification  
6:30 pm Group dinner  
7:30 pm Bush Poetry and Bush Dancing

Accommodation  
Binna Burra Mountain Lodge, Binna Burra Rd, Australia Phone:1 800 074 260 (in AUS), Beechmont

**Saturday 12 June Day 19: Binna Burra (B, D)**

6:30 am Group breakfast  
8:30 am Guided Walk  
*To Tullawallal and Coomera Falls with optional hike of full circuit*  
4:30 pm Trap Setting (optional)  
6:30 pm Group dinner  
7:30 pm Nocturnal Field Exercises  
*Spiders and spotlighting*

Accommodation Binna Burra Mountain Lodge

**Sunday 13 June Day 20: Binna Burra (B,D)**

6:30 am Trap setting (optional)  
7:00 am Bird Watching  
8:00 am Group breakfast  
9:00 am Rain Forest Field Exercise  
1:00 pm Group lunch  
2:30 pm Discussion of Rainforest Field Exercise  
4:00 pm Flying Fox Census and Search for Platypus  
6:00 pm Group dinner

Accommodation Binna Burra Mountain Lodge

**Monday 14 June Day 21: Binna Burra - Brisbane (B)**

8:00 am Group Discussion  
*Discussion on Binna Burra module and feedback on Carnarvon module*

10:00 am Travel from Binna Burra to Brisbane

Accommodation

Hotel George Williams, 317 - 325 George Street, BRISBANE QLD 4000 Phone: (07) 3308 0700

**Tuesday 15 June Day 22: Brisbane**

8:30 am Exam review

11:00 am Personal time

Accommodation

Hotel George Williams

**Wednesday 16 June Day 23: Brisbane (D)**

8:30 am Binna Burra module due

12:30 pm Research Project: Survey B

1:00 pm Program Evaluations  
*Location TBC*

2:00 pm Final exam  
*Location TBC*

6:30 pm Final Group dinner

Accommodation

Hotel George Williams

**Thursday 17 June Day 24: Brisbane - USA**

7:30 am Check out and depart for Brisbane airport

11:05 am Group flight QF15 departs for LAX (US Students only)

11:30 am Flight QA 397 departs for Nadi (Fiji students only)  
QA 397